REMARKS

Claims 9-24 are pending. Upon entry of the foregoing amendments, claims 9-23, 25 and 26 will be pending.

Claim 14 was rejected under 35 USC 112, second paragraph, as being indefinite for reciting the phrase "substantially purified". Claim 14 has been amended to overcome this rejection. Reconsideration is respectfully requested. The amendments are supported by the specification as filed, see page 7, 2nd paragraph.

Claim 24 was rejected under 35 USC 112, second paragraph, as being indefinite for reciting the E.C. designation. Claim 24 has been canceled. This rejection has therefore been rendered moot.

Claims 9-15 and 20-24 were rejected under 35 USC 103 (a) as being unpatentable over Kossman, WO 95/31553. This rejection is respectfully traversed.

Kossman relates to DNA sequences coding for proteins having the enzymatic activity of an amylosucrase which allows the synthesis of linear α-1,4 glucans from the substrate by bacteria, fungi and plants or in cell-free systems. Kossman furthermore discloses plasmids and bacteria containing these DNA sequences as well as processes for the production of plants and microorganisms capable of intracellullary or extracellulary expressing a polypeptide having amylosucrase activity. Kossman also discloses the production of pure fructose using proteins exhibiting the enzyme activity of amylosucrase.

As acknowledged by the Examiner, Kossman does not disclose the use of the enzyme under buffer-free conditions. However, contrary to the Examiner's assertions, the use of a buffer is not necessarily to adjust the pH of a solution to neutral conditions, but primarily to keep an arbitrary pH value constant or at least nearly constant while a reaction takes place. Furthermore, a buffer may also be needed to adjust the osmolarity of a reaction solution. One skilled in the art would not perform an enzymatic reaction without a buffer, because the activity of most enzymes is known to be strictly dependent on a constant pH value. In view of the fact that a buffer is

generally necessary to maintain a specific pH, it would not be obvious that the claimed reaction would work in the absence of a buffer. According to the present invention, there is a considerable advantage in performing the reaction in plain water because this results in significantly improved purity of the product. Therefore, the present invention is not taught or suggested by Kossman, as Kossman does not disclose the use of an enzyme under buffer-free conditions. Reconsideration is respectfully requested.

Further, claims 9-24 were rejected under 35 USC 103(a) as being unpatentable over Kossman, and further in view of Remaud-Simeon, Carbohydrate Engineering 1995:313-320. This rejection is respectfully traversed.

Kossman is discussed above. Remaud-Simeon relates to the cloning of chromosomal *Sau* 3A DNA fragments from *Neisseria polysaccharea* into phage λ EMBL3 to characterize amylosucrase activity (E.C. 2.4.1.4.) and to evaluate its potential use as a glycosylation tool. A recombinant phage expressing the amylosucrase activity was isolated. Production of the enzyme was carried out by infection of liquid culture of *E. coli*. The enzyme was purified from culture lysate to a specific activity, and when incubated with sucrose and traces of glycogen, the recombinant amylosucrase produced an insoluble glucopolysaccharide mainly composed of α-(1→4) glucosidic linkages and a very low degree of α-(1→6) branched linkages (less than 5%). The recombinant enzyme is activated by glycogen, starch and maltooligosaccharides. It also catalyzes the transfer of glucosyl residue from sucrose onto a maltopentaose acceptor to produce maltohexose and heptose.

Accordingly, Remaud-Simeon does not cure the fundamental deficiency of Kossman. Therefore, the present invention is not taught or suggested by either Kossman or Remaud-Simeon, taken alone or in combination, because neither reference discloses the use of an enzyme under buffer-free conditions. Reconsideration is respectfully requested.

AUTHORIZATION

No fees are believed necessary. However, the Commissioner is hereby authorized to charge any additional fees, including fees for net addition of claims, or credit any overpayment to Deposit Account No. 50-1710.

CONCLUSION

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and withdrawn them. There being no other objections or rejections, Applicants respectfully request that the present application be allowed and pass to issue.

If the Examiner believes, for any reason, that personal communication will expedite prosecution, the Examiner is invited to telephone the undersigned attorney directly in our Washington, D.C. office at (202) 625-3500. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

Please cancel claim 24.

Please amend claim 14 as follows:

14. (Amended) The method of claim 9 in which the enzyme having amylosucrase enzymatic activity [is substantially purified] has a purity of at least 80%.

Please add the following new claims:

- -25. The method of claim 14 in which the enzyme has a purity of at least 90%.

26. The method of claim 25 in which the enzyme has a purity of at least 95%.- -